

## **ABSTRACT**

Some embodiments of the invention provide a method that identifies a set of routes for a net that has a set of pins in a region of a design layout. The method initially partitions the region into a number of sub-regions. It then identifies a first set of sub-regions that contains the net's pins. The method next determines whether a storage structure stores a set of routes for the identified first set of sub-regions. If so, the method retrieves the set of routes. If not, the method generates a set of routes. In some embodiments, the method generates a set of routes by first identifying a connection set of sub-regions that when combined with the first set forms a closed set of sub-regions. The closed set of sub-regions does not have any sub-region that is not adjacent to another sub-region in the closed set. The storage structure stores a set of routes for the closed set. For the first set, the method then retrieves the set of routes that are stored for the closed set of sub-regions from the storage structure.